

REMARKS/ARGUMENTS

Status of Claims

Claims 1 to 29 are currently pending in the application.

35 U.S.C. § 103(a) Rejections

In rejecting claims under 35 U.S.C. § 103(a), the Examiner bears the initial burden of establishing a *prima facie* case of obviousness. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). *See also In re Piasecki*, 745 F.2d 1468, 1472 (Fed. Cir. 1984). It is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. *See In re Fine*, 837 F.2d, 1071, 1073 (Fed. Cir. 1988). In so doing, the Examiner is expected to make the factual determinations set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966), viz., (1) the scope and content of the prior art; (2) the differences between the prior art and the claims at issue; and (3) the level of ordinary skill in the art. The Graham factors, including secondary considerations when present, are the controlling inquiries in any obviousness analysis. Once the findings of fact are articulated, Office personnel must provide an explanation to support an obviousness rejection under 35 U.S.C. 103. *KSR Int'l. Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1741 (2007). According to *KSR*, for the Patent Office to properly combine references in support of an obviousness rejection, the Patent Office must identify a reason why a person of ordinary skill in the art would have sought to combine the respective teachings of the applied references. Only if this initial burden is met does the burden of coming forward with evidence or argument shift to the appellant. *See Oetiker*, 977 F.2d at 1445. *See also Piasecki*, 745 F.2d at 1472. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. *See Oetiker*, 977 F.2d at 1445; *Piasecki*, 745 F.2d at 1472.

Applicant's analysis below demonstrates that the Examiner has failed to properly conform to the aforementioned guidelines for a finding of obviousness under 35 U.S.C. 103, that is the factual determinations set forth in *Graham v. John Deere Co.* and the reason why a person of ordinary skill in the art would have sought to combine the respective teachings of the applied references as required by *KSR*.

Claims 1 to 8, 11 to 18 and 21 to 29

The Examiner has stated that claims 1 to 8, 11 to 18 and 21 to 29 are unpatentable under 35 U.S.C. 103(a) over Alriksson *et al.* (U.S. Patent No. 6,977,938, hereinafter Alriksson) in view of Dolganow *et al.* (U.S. Patent Publication No. 2006/0123110, hereinafter Dolganow), McAllister *et al.* (U.S. Patent Publication No. 2001/0010681, hereinafter McAllister) and further in view of “IEEE 100 The Authoritative Dictionary of IEEE Standards Terms Seventh Edition”, 2000 (hereinafter IEEE 100 Dictionary).

Claim 1

Missing Elements

The following is a discussion of why the cited references do not disclose all the elements of the rejected claims. While it may be considered that “the mere existence of differences between prior art and an invention does not establish the invention’s non-obviousness”, Office personnel must explain why the difference(s) between the prior art and the claimed invention would have been obvious to one skilled in the art (Examination Guidelines for Determining Obviousness Under 35 U.S.C. 103 in view of the Supreme Court Decision in *KSR international Co. v. Teleflex Inc.*, published in Federal Register Vol. 72, No. 195 October 10, 2007). As such, if elements from a claim are not disclosed by the combination of cited references and no valid reasoning is provided why the missing elements would be obvious, this may provide a strong basis for why a claim should not be rejected based on obviousness.

Some of the arguments below pertaining to Alriksson, Dolganow and McAllister are substantially based on the previous Office Action response dated April 6, 2009. They have been maintained to emphasis their importance with respect to new arguments pertaining to the IEEE 100 Dictionary.

With regard to claim 1, the Examiner alleges that Alriksson discloses “a method of routing packets from a wireless communications terminal” in column 3, lines 3-6, in which it is indicated by the Examiner that in “source routing” disclosed by Alriksson the route is chosen by the terminal.

The Examiner concedes that Alriksson does not disclose “receiving, via a respective wireless link from at least one of a plurality of wireless access nodes forming a network, network information relating to links between nodes”. The Examiner alleges that Dolganow discloses this limitation in the form of a source routing protocol using available resource advertisements for identifying a path as disclosed in the abstract of Dolganow and paragraph [0033] of Dolganow, in which an example of resource information is disclosed as being available bandwidth.

The Examiner concedes that Alriksson does not disclose “selecting a route via the network for packets from the terminal in dependence upon the network information and supplying packets with information relating to the selected route”. The Examiner alleges that Dolganow discloses this limitation in the form of the source routing protocol using available resource advertisements for identifying a path as described in the abstract.

Also with regard to claim 1, the Examiner concedes that the combination of Alriksson and Dolganow does not disclose “selecting a route in dependence upon information dependent upon wireless communications between the terminal and a least one of the nodes”. However, it is alleged that McAllister discloses this limitation.

On page 5 of the present application, the Examiner has conceded that the combination of Alriksson, Dolganow and McAlister does not disclose selecting a route from the terminal. To compensate for this deficiency the Examiner has introduced a new reference, namely IEEE 100 Dictionary, that allegedly discloses this reference.

Applicant will now briefly bring to the Examiner’s attention selected portions of the description of the present application that discuss the differences between nodes in a network performing source routing, in a manner analogous to Dolganow and McAllister, and the novel approach of a terminal performing routing of a packet at the terminal recited in the claims of the present application.

Referring to the present application at page 4, starting at line 8, a conventional manner of routing packets is described for a wireless terminal accessing a network via a wireless access

node. Line 25 states “In each of these cases, all decisions on how to route packets through the wireless network at made independently of the mobile device or terminal”.

Furthermore, at page 8, starting at line 7, the present application states:

It will be appreciated that link state routing protocols and some of their standard extensions already provide mechanisms to convey updated link state conditions for the route selection process in the network. However, known route selection processes take place in the nodes of the network, and link state messages are only exchanged between the nodes. The last hop wireless link conditions are not considered in any such route selection, and they are not available to the routing decision engine or process at the network nodes.

Thus in known networks, with routing decisions made only at the network nodes, a terminal does not participate in route selection and instead must use signalling messages over its wireless link to the network to convey QoS requirements for each traffic flow to the network, and the network nodes then invoke a route selection process. This has the disadvantages of signalling overhead not only for providing the QoS requirements initially but also for maintaining established QoS states throughout the packet flow.

Furthermore, in this prior art case the route selection by the network nodes and the access point selection by a mobile terminal are not coordinated. A mobile terminal has no knowledge of conditions in the network, and simply picks an access point that provides the best signal strength, which may be inadequate or undesirable for the required QoS in view of conditions within the network. In other words, the separate routing decisions in the network nodes based on conditions in the network and access point decisions by the terminal based on signal strength may result in a combination that may not satisfy QoS requirements.

In contrast, in embodiments of this invention the terminal is responsible for the route selection. Consequently, conditions (e.g. available bandwidth,

current delay, bit error rate, radio signal strength, etc.) of the last hop wireless link between the terminal and the network can be considered in the route selection process. This allows use of alternative access points, and hence alternative routes, that may have a signal strength that may not be the best (while still being enough to provide network connectivity) but have a better prospect of supporting the required QoS of the traffic flow. In contrast, a route that includes the wireless link having the best signal strength may not provide enough resources, for the last hop or within the network, to support the required QoS.

Applicant submits that Dolganow describes a system that is substantially the same as what is described above, namely a network in which a network node performs routing of a packet through the network in which last hop wireless link conditions, that is the wireless access link between the wireless terminal and the access node, are not considered in the routing selection. It is this same network link that is used for receiving network information. Therefore, from the perspective of the claim as a whole, Applicant submits that it is particularly relevant that Dolganow does not disclose or pertain to a wireless terminal having functionality reciting claim 1. Therefore, Applicant maintains that Dolganow does not disclose “in the terminal: receiving, via a respective wireless link from at least one of a plurality of wireless access nodes forming a network, network information relating to links between the nodes”.

Applicant submits that McAllister is another example of a network in which a network node performs selecting a route, not a wireless terminal in communication with a node of the network in which the wireless terminal performs selection of a route, as recited in claim 1. Applicant submits that McAllister, in view of the disclosure at paragraph [0007] (i.e. the use of link costs) is a particularly good example of what is described in the present invention on page 8, namely “known route selection processes take place in the nodes of the network, and link state messages are only exchanged between the nodes”. Clearly, there is no discussion in McAllister regarding using “information dependent upon wireless communications between the terminal and a least one of the nodes”, which includes last hop wireless link conditions between the wireless terminal and an access node of the network, in selecting a route for the packet.

Claim 1 recites that selecting a route is performed “from the terminal in dependence upon the network information and information dependent upon wireless communications between the terminal and a least one of the nodes” (emphasis added). Applicant submits that since the network information is recited as being received by the terminal and the information dependent upon wireless communications is not recited as being received at the terminal, the information dependent upon wireless communications is inherent to the terminal resulting from wireless communications with a one hop away network node. Furthermore, since the “information” is recited as information that is dependent upon wireless communications between the terminal and a least one of the nodes, Applicant submits that this is information based on a link between the terminal and at least one node. Since it is a wireless link, the link is range limited and does not necessarily include every link to every node in the network. The wireless communications between the terminal and a least one of the nodes are typically a link between the terminal and a node a first hop away from the terminal, also considered to be “the last hop wireless link between the terminal and the network”, page 9, lines 8-9 of the present application.

With respect to the equating of the definition of source routing in the IEEE 100 Dictionary with “selecting a route from the terminal”, Applicant respectfully disagrees with the Examiner’s interpretation of the definition of “source routing” as defined in the IEEE 100 Dictionary, which has lead to the Examiner alleging the definition would encompass “selecting a route from the terminal”. The definition of source routing in the IEEE 100 Dictionary is as follows:

Source routing: (1) A bridging technique where frames contain the list of bridges and networks that must be traversed for the frame to reach the destination. In this scheme, the transmitter must know the route to the destination before sending the frame. (2) A mechanism to route frames through a bridged LAN. Within the source routed frame, the station the station specifies the route the frame will traverse. (3) The capability for a source to specify the path that a frame will use to traverse the bridged network.

Applicant submits that there is nothing in the definition that would lead one skilled in the art to the conclusion that source routing is performed by a wireless communications terminal as

recited in claim 1 of the present application. The Examiner has apparently equated the terms “transmitter”, “station” and “source” with a wireless communications terminal. Applicant submits that there is no reason on the face of the definition that would lead to such a conclusion. Applicant submits that there is no support for one skilled in the art reaching such a conclusion either, especially based on the disclosure of the cited references and the dates involved.

The publication date of the IEEE 100 Dictionary is 2000. Both Dolganow and McAllister are directed to network nodes, that are not endpoints of the network, performing the source routing. These two references include network endpoints that are identified as “users” in McAllister and “Originating Parties” in Dolganow. Neither of these references contemplate the users and Originating Parties as performing source routing. The McAllister application was filed on March 22, 2001 and the Dolganow application is a continuation of an application that was filed on June 11, 2001. Both dates are subsequent to the publication date of the IEEE 100 Dictionary. If the definition of source routing is that which is alleged by the Examiner, then it would seem likely that the McAllister and Dolganow applications would have suggested the possibility of the users and Originating Parties, respectively, performing the source routing, as the applications both having filing dates subsequent to the IEEE 100 Dictionary publication date. Applicant submits that source routing as defined in the IEEE 100 Dictionary was not intended to include end users, Originating Parties, or wireless communication terminals, as conventional understanding of the time of publication of the IEEE 100 Dictionary was that “source routing” was performed by nodes in the network, not end users, Originating Parties, or wireless communication terminals.

Clearly, it can be seen that the nodes performing the source routing in Dolganow and McAllister are to be considered a “transmitter”, “station” and a “source”. The terms “transmitter”, a “station” and a “source” do not necessarily imply an endpoint in a network, and should not be equated to an endpoint if this was not intended by the definition in the IEEE 100 Dictionary.

Applicant respectfully submits that the Examiner has not established that one skilled in the art would understand the definition for “source routing” disclosed in the IEEE 100 Dictionary to include a wireless communication terminal as a “source”, as opposed to nodes in a

network that are not end users performing routing, and as such has incorrectly equated what is disclosed in the disclosed in the IEEE 100 Dictionary and what is recited in the independent claims.

For at least the reasons discussed above, Applicant respectfully submits that the combination of Alriksson, Dolganow, McAllister and the IEEE 100 Dictionary does not teach all the limitations recited in claim 1, as alleged by the Examiner. Furthermore, the Examiner has failed to explain why the missing features would be obvious to one skilled in the art. Without all the limitations of claim 1 being disclosed by the three references and no reason provided by the Examiner why these missing limitations would be obvious, it is not reasonable to expect that the combination of references would render claim 1 of the present invention obvious.

Reason to Combine

Once the scope of the prior art is ascertained, the content of the prior art must be properly combined. An obviousness inquiry requires review of a number of factors, including the background knowledge possessed by a person having ordinary skill in the art, to determine whether there was an apparent reason to combine the elements of the prior art in the fashion claimed by the present invention. For the Patent Office to combine references in support of an obviousness rejection, the Patent Office must identify a reason why a person of ordinary skill in the art would have combined the references *KSR Int'l v. Teleflex, Inc., No. 04-1350, slip op. at 14 (U.S., Apr. 30, 2007)*, Id. at 15. Even if the Patent Office is able to articulate and support a suggestion to combine the references, it is impermissible to pick and choose elements from the prior art while using the application as a template.

Applicant submits that there is no suggestion of a desirability of the claimed invention in the references that would serve as a reason for one skilled in the art to combine the references. Applicant submits that the Examiner has failed to provide a suitable explanation of why one would combine the three cited references when the two references being relied upon for the majority of the steps of the method claim are unrelated to wireless communications.

The Examiner alleges on page 5 that all of the references disclose “source routing”, wherein the source determines the route the packet will be transmitted through the network.

Applicant respectfully submits that while Dolganow and McAllister may disclose source routing from network nodes, these neither reference suggests or discloses taking into consideration “information dependent upon wireless communications between the terminal and a least one of the nodes”. Despite the Examiner’s allegation that such a network node can be considered a source/terminal, Applicant submits that it is inappropriate to equate the network nodes of Dolganow and McAllister with a terminal, when the network nodes of Dolganow and McAllister clearly do not have the functionality of a wireless communications terminal capable of utilizing “information dependent upon wireless communications between the terminal and a least one of the nodes”, as recited in claim 1.

In addition the Examiner has not suggested a suitable reason for suggesting that Dolganow, McAllister and the IEEE 100 Dictionary could be considered to disclose a terminal selecting a route. Applicant submits that if they did suggest such an equivalency, then such a disclosure in Dolganow and McAllister would have substantially amounted to the Originating Parties 10 in Dolganow and/or the Users 1,2,3,4 in McAllister being capable of selecting a route for a packet at the terminal. Applicant submits that such functionality is not disclosed in either Dolganow or McAllister, and the IEEE 100 Dictionary does not specifically disclose end users such as a wireless communications terminal being capable of performing source routing.

The Examiner alleges that it would have been obvious to modify the system of Alriksson by “receiving, via a respective wireless link from at least one of a plurality of wireless access nodes forming a network, network information relating to links between nodes and selecting a route via the network for packets from the terminal in dependence upon the network information and supplying packets with information relating to the selected route” as allegedly disclosed by Dolganow. The Examiner alleges that such a modification would benefit the system by ensuring the terminal chooses a route based on the current available bandwidth between the links. Applicant submits that Dolganow discloses networks in which the switching nodes, not wireless terminals, receive information and select an appropriate route. Applicant submits that there is no provided reason why the network nodes selecting the route, which is what is disclosed in Dolganow, would be beneficial and advantageous over a communication terminal (the end user in Dolganow), and specifically a wireless communication terminal, selecting the route, which is

what is recited in claim 1. Therefore, Applicant maintains that the Examiner has not provided a suitable reason for combining Alriksson and Dolganow.

The Examiner alleges that it would have been obvious to modify the system of the combination of Alriksson and Dolganow by selecting a route in dependence upon information dependent upon communications between the terminal and at least one of the nodes as allegedly disclosed in McAllister. The Examiner alleges that such a modification would benefit the system by ensuring that the chosen route is affordable to the user. Applicant submits that Dolganow and McAllister both disclose networks in which the switching nodes, not wireless terminals, select an appropriate route. Applicant submits that there is no provided reason why the network nodes selecting the route, which is what is disclosed in Dolganow and McAllister, would be beneficial and advantageous over a communication terminal (the end user in Dolganow and McAllister), and specifically a wireless communication terminal, selecting the route, which is what is recited in claim 1.

The Examiner alleges that it would have been obvious to modify the system of the combination of Alriksson, Dolganow and McAllister by selecting a route from the terminal, as shown by the IEEE 100 Dictionary. Applicant submits that selecting a route from the terminal is not specifically disclosed by the IEEE 100 Dictionary and as such this is an incorrect interpretation of the combination of references, and as such this renders defective the Examiner's reasoning for combining the references.

Furthermore, Applicant maintains that the Examiner's selection of Alriksson is based on hindsight selection solely for its disclosure of a wireless terminal. The Examiner concedes that Alriksson does not disclose any of the steps of the method performed by the wireless device in claim 1 of the present application. As Alriksson does not disclose the active method step limitations of claim 1, which are alleged to be disclosed by the other three references, it is improbable that one skilled in the art would consider such a reference in combination with the other three references, none of which discloses wireless terminal functionality.

Applicant submits that since Dolganow and McAllister do not disclose a wireless terminal receiving network information and selecting a routing path for a packet based on

network information and information dependent upon wireless communications between the terminal and a least one of the nodes, but instead disclose a network node that does not consider information dependent upon wireless communications between the terminal and a least one of the nodes, each of Dolganow and McAllister teach away from a wireless terminal receiving network information and selecting a routing path for a packet based on network information and information dependent upon wireless communications between the terminal and a least one of the nodes. Applicant submits that this is a reason that one skilled in the art would not combine Dolganow and McAllister with Alriksson in the manner alleged by the Examiner.

In addition, as each of Dolganow and McAllister do not operate in the same manner as Alriksson, Applicant submits that the proposed modification of the references resulting from the combining of the references suggested by the Examiner would change the principle of operation of each of Dolganow and McAllister or Alriksson, as Dolganow and McAllister operates in a different manner than Alriksson. Applicant submits that this is another reason that one skilled in the art would not combine Dolganow, McAllister and Alriksson in the manner alleged by the Examiner.

For at least the reasons discussed above, Applicant submits that the Examiner has failed to provide a suitable reason for combining the cited references.

Applicant submits that the Examiner has failed to meet the initial burden of establishing a *prima facie* case of obviousness in view of limitations of claim 1 not being disclosed by the combination of references and failure to provide a suitable reason for combining the references. It is respectfully requested that the Examiner reconsider and withdraw the obviousness rejection to claim 1.

Claim 2

Missing Elements

Claim 2 is dependent upon claim 1 and includes the additional limitation “in the terminal, monitoring a status of the selected route” (emphasis added). The Examiner alleges that Dolganow discloses this limitation in the abstract in the form of “source routing protocol uses

the available resource advertisement for identifying a path”. There is no suggestion or disclosure in the abstract of Dolganow that the terminal monitors the status of a selected route. Firstly, as discussed above, Dolganow is not directed to the originating parties (communication terminals) performing any selection of routes or monitoring of those routes. Secondly, in the abstract of Dolganow there is no specific disclosure of any form of “monitoring the status of the selected route” (emphasis added). The abstract merely describes that “The method advertises the available resource information for the node to adjacent nodes linked to the node in the network when the node receives a request for a connection to be routed over the link, the request seeking resources exceeding available resources for the link, but not exceeding the last advertised resources for the link” (emphasis added). There is no disclosure of what occurs after the request is granted.

While the Examiner has not included The IEEE 100 Dictionary specifically in the rejection of claim 3 as disclosing “in the terminal”, it can be assumed that this is the intention, based on the rejection of claim 1. However, as discussed above with respect to claim 1, equating the definition of source routing found in the IEEE 100 Dictionary with the limitation “in the terminal”, is in error as there is no indication that this is what would be understood by one skilled in the art.

Reason to Combine

For at least the reasons discussed above with regard to the rejection to claim 1, Applicant submits that there is insufficient reason to combine the references as alleged by the Examiner.

Applicant submits that claim 2 patentably distinguishes over the cited references of Alriksson, Dolganow, McAllister and the IEEE 100 Dictionary. It is respectfully requested that the Examiner reconsider and withdraw the obviousness rejection to claim 2.

Claims 3 and 15

Missing Elements

Claim 3 is dependent upon claim 1 and includes the additional limitation “in the terminal, receiving and monitoring network information to determine a status of the selected route and, selectively in dependence upon the determined status, selecting a new route via the network for packets from the terminal” (emphasis added). The Examiner alleges that Dolganow discloses this limitation in the abstract, pointing to the same subject matter as in the rejection of claim 2. For reasons discussed above in the rejection of claim 2, Applicant submits that Dolganow does not disclose the additional limitation of claim 3.

While the Examiner has not included The IEEE 100 Dictionary specifically in the rejection of claim 3 as disclosing “in the terminal”, it can be assumed that this is the intention, based on the rejection of claim 1. However, as discussed above with respect to claim 1, equating the definition of source routing found in the IEEE 100 Dictionary with the limitation “in the terminal”, is in error as there is no indication that this is what would be understood by one skilled in the art.

Reason to Combine

For at least the reasons discussed above with regard to the rejection of claim 1, Applicant submits that there is insufficient reason to combine the references as alleged by the Examiner.

Claim 15 recites similar subject matter to claim 3 and patentably distinguishes over the combination of references for at least the same reasons discussed above.

Applicant submits that claims 3 and 15 patentably distinguish over the cited references of Alriksson, Dolganow, McAllister and the IEEE 100 Dictionary. It is respectfully requested that the Examiner reconsider and withdraw the obviousness rejection to claims 3 and 15.

Claims 14, 24, 27 and 28

Claims 14 and 24 are additional independent method claims that recite respective methods that are performed in the terminal. Claim 27 is an independent claim directed to a method of “routing packets from a wireless communication terminal via nodes of a network” wherein the steps are controlled by the wireless communication terminal. Claim 28 is an independent claim directed to a method of communication in a wireless access node of a network wherein the node receives packets including routing information selected by the wireless communication terminal. As claims 14, 24, 27 and 28 all pertain to a wireless terminal operating in a similar fashion to claim 1, Applicant submits that claims 14, 24, 27 and 28 patentably distinguish over Alriksson, Dolganow, McAllister and the IEEE 100 Dictionary. It is respectfully requested that the Examiner reconsider and withdraw the obviousness rejection of claims 14, 24, 27 and 28.

Claims 4 to 8, 11 to 13, 16 to 18, 21 to 23, 25, 26 and 29

Claims 4 to 8, 11 to 13, 21 and 22 are dependent, either directly or indirectly, on claim 1. Claims 16 to 18 and 23 are dependent, either directly or indirectly, on claim 14. Claims 25 and 26 are dependent, either directly or indirectly, on claim 24. Claim 29 is dependent on claim 28. For at least the reason of their dependence on claims 1, 14, 24 and 28, Applicant submits that dependent claims 4 to 8, 11 to 13, 16 to 18, 21 to 23, 25, 26 and 29 patentably distinguish over the combination of Alriksson, Dolganow, McAllister and the IEEE 100 Dictionary.

It is respectfully requested that the Examiner reconsider and withdraw the obviousness rejection of the identified dependent claims.

Claims 9, 10, 19 and 20

Claims 9, 10, 19 and 20 have been rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Alriksson, Dolganow and McAllister and in view of other references. Claims 9 and 10 depend indirectly on claim 1 and claims 19 and 20 depend directly on claim 14.

In view of Applicant's submission regarding the 35 U.S.C. 103 rejection of claims 1 and 14, dependent claims 9, 10, 19 and 20 should also be patentable.


While the Examiner has not included The IEEE 100 Dictionary specifically in the rejection of claims 9, 10, 19 and 20 as disclosing "in the terminal", it can be assumed that this is the intention, based on the rejection of claim 1. However, as discussed above with respect to claim 1, equating the definition of source routing found in the IEEE 100 Dictionary with the limitation "in the terminal", is in error as there is no indication that this is what would be understood by one skilled in the art.

In view of the above discussion, the Examiner is respectfully requested to withdraw the 35 U.S.C. 103 rejections of claims 9, 10, 19 and 20.

In view of the foregoing, early favorable consideration of this application is earnestly solicited.

Respectfully submitted,

HAMID MAHMOOD, ET AL.

By 
Mark S. Starzomski
Reg. No. 62,441

Dated: July 27, 2009

MSS:mcg